CALFED
BAY-DELTA
PROGRAM

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Ms. Ronnie Cohen
Natural Resources Defense Council
71 Stevenson Street, Suite 1825
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Mr. Barry Nelson
Save San Francisco Bay Association
1600 Broadway, #300
Oakland, California 94612

Dear Ms. Cohen and Mr. Nelson:

Thank you for your June 4, 1999 letter providing comments on CALFED's Economic Evaluation of Water Management Alternatives. Your participation has added significant value to this effort. As you note, while we have not intended that this analysis provide complete answers by itself, it will provide useful information as CALFED refines its water management strategy.

As you know, the initial "screening analysis" component of the EEWMA is currently being completed. The screening analysis provides information about the mix of supply enhancement and demand reduction measures that would be selected under a least-cost planning approach. The analysis was conducted on a regional basis, under various sets of assumptions grouped in preference sets. A draft report on this effort was released at our workshop on June 22. Your comments were considered in preparing this draft report. As you know, we have requested that any additional comments be submitted by July 13. Please note that since the May 12, BDAC meeting, some revisions in assumptions have been made, based upon comments from participants in the EEWMA effort. While these refinements have resulted in some adjustment in the selection of options in the screening analysis scenarios, our basic findings from the study have not changed.

We agree with many of the points in your June 4 letter. Several of the issues you raised were emphasized in our draft report. However, our interpretation of some of the key findings of this analysis differ somewhat from your characterizations. Your points are repeated below, along with our specific responses.

- ***"Unsubsidized storage does not appear to be the most cost-effective way of meeting demand."***

As you know, our screening analysis considers only the potential water supply benefits of storage options; other potential benefits such as improvements to system operational flexibility to provide improved ecosystem protection or drinking water quality must also be considered in determining the role of storage in CALFED's water management strategy. Our screening analysis illustrates that there is a wide range of costs associated with all water management tools. For example, some water use efficiency measures are more cost-effective than surface storage options, while other water use efficiency measures are less cost-effective than surface storage.

In this analysis, storage options were evaluated with low and high yield estimates, representing the uncertainty in operational requirements. These potential yield estimates are preliminary; much more detailed work will be necessary to determine the most effective configurations of facilities and operational rules for any given storage project. The screening analysis indicates that under the unconstrained scenario, surface storage would account for about 15 percent of the new dry year supply included in the least-cost plan, using the higher yield assumptions for surface storage. When using the lower yield estimates, the portion of new dry year supply provided by surface storage decreases, but surface storage remains among the options included in the least-cost plan. We note that in this analysis, surface storage is only indicated as cost-effective for urban use.

We conclude from this information that surface storage is among the water management tools that could, under proper circumstances, provide cost-effective water supply reliability improvements. As is true of all water management tools evaluated, some specific projects appear cost effective while others are likely not cost-effective. More detailed analyses will better define how surface storage could fit into an overall water management strategy.

- ***"The price of most water management alternatives, including the cost of all surface storage projects, is greater than the willingness to pay for new water supplies by agricultural water users."***

We concur that this analysis indicates that the cost of most water management alternatives exceeds the willingness to pay of agricultural water users. We also note that agricultural water users have lost several hundred thousand acre-feet of affordable water supplies over the last several years through enactment of the Bay-Delta Accord and CVPIA. Our screening analysis does not account for potential financial arrangements between agricultural and urban water users for conjunctive use projects. This type of arrangement, for example, might provide agricultural water users with additional supplies from surface storage

G-007820

projects during wetter years in exchange for additional dry year supply benefits to urban water users from groundwater extractions. Creative solutions like this should be explored before drawing final conclusions regarding application of any water management tool.

- ***"The EEWMA assumes that 800,000 acre-feet of water will be made available to the environment, per Alternative 4 of the CVPIA PEIS. This assumption is not transparent in the analysis and was not clear in the materials provided to and presented to BDAC."***

Your observation is accurate; we have attempted to clarify this assumption in our draft report. Our analysis assumes that about 800,000 acre-feet of water is acquired for environmental purposes (beyond the Bay-Delta Accord and CVPIA (b)(2) reallocations) through voluntary water transfers. In our evaluation, this water is made available for transfer through the temporary fallowing of 147,000 acres of agricultural land in the Sacramento and San Joaquin Valleys. Furthermore, we assume that an additional 75,000 acres of drainage impaired land is retired in the San Joaquin Valley. As a simplification, we assume these actions have taken place prior to considering potential actions to improve agricultural and urban water supply reliability. In reality, environmental water purchases would likely compete with other water buyers in the market. In any case, while potential social impacts should be further evaluated, a significant quantity of temporary land fallowing appears to be cost effective. Our screening analysis indicates that under the unconstrained scenario, almost 1 million acre-feet of water (including the assumed environmental water acquisitions) would be provided by water transfers resulting from land fallowing.

- ***"The least expensive voluntary dry year land fallowing options could be dramatically less expensive than new surface storage."***

We concur that some dry year land fallowing is among the most cost-effective of potential water management actions. Our analysis indicates that about 900,000 acre-feet of water may be available from voluntary dry year fallowing for less than $230 per acre-foot at the source. Beyond this amount of land fallowing, water from surface storage options begins to be competitive with land fallowing options.

While temporary land fallowing is designed to supply water only in dry years, surface storage projects can provide benefits in average type years without sacrificing dry year benefits, as demonstrated in CALFED sensitivity studies of potential storage operations. Given this, it would be inappropriate to assign all costs of surface storage projects to only the dry year benefits. Additional evaluation is planned to assess the performance of various water management scenarios over a variety of year types. This effort should provide a more accurate method of comparing costs of various water management options.

G-007821

- ***"The EEWMA only considers the availability of various water management alternatives to meet agricultural and urban demands, not to meet environmental needs."***

As indicated above, an additional 800,000 acre-feet of water was assumed to be made available for environmental purposes in this evaluation. This quantity of water was assumed to be appropriated prior to consideration of alternatives for meeting agricultural and urban demands. Since it would not be possible to draw an accurate "demand curve" for environmental water, it is not clear to us how we would account differently for environmental water use in this evaluation. We will consider any suggestions you have for future refinement of this evaluation.

- ***"There are a large number of water management alternatives that can be eliminated on economic grounds, including most surface storage projects."***

As indicated in our draft report, all types of water management actions appear in the list of least cost options to meet 2020 urban demand for water, including surface storage projects. Our conclusion from this information is that there is no economic reason to eliminate any category of water management option. Some specific alternatives from all categories of water management actions, including surface storage, land fallowing, water use efficiency, and water recycling, appear uneconomical. Other issues, such as environmental and social impacts, drinking water quality needs, and system flexibility must be considered along with this economic information before any specific alternative is removed from consideration.

Thank you again for your comments and your participation in this effort. While many improvements to this evaluation are possible, we believe the work completed to date has been very useful in demonstrating the basic economic principles that are fundamental to any water management strategy. CALFED continues to believe that all water management tools must be available to form the most effective water management strategy. Refinement of this work will allow CALFED to add definition to the role of each water management tool.

Sincerely,

for Lester A. Snow
Executive Director

G-007822